

WHAT IS CLAIMED IS:

1. A staple fiber for an electret non-woven fabric,  
which is a polyolefin heat-bonding fiber having 0.05 to  
5 1.0 % by weight of an oil adhering thereto, characterized  
in that the amount of the adhering oil decreases to 0.001  
to 0.2 % by weight, and that the decrease ratio of the  
amount of the adhering oil, represented by the equation (I),  
can be at least 60 %,

10  
Decrease ratio (%) of the amount of the  
adhering oil =  $[(A-B)/A] \times 100 \dots (I)$   
wherein A is an amount (% by weight) of  
the oil adhering to the heat-bonding  
15 fiber and B is an amount of the oil  
adhering to the non-woven fabric  
after the heat treatment,

20 under heat treatment for forming the polyolefin heat-  
bonding fiber into a non-woven fabric and/or under heat  
treatment of a non-woven fabric formed of the polyolefin  
heat-bonding fiber.

25 2. The staple fiber of claim 1, wherein the oil  
contains, as a main component, an ester obtained from  
polyethylene glycol having a molecular weight of 400 to 800  
and a fatty acid having 10 to 20 carbon atoms.

30 3. The staple fiber of claim 1, wherein the  
polyolefin heat-bonding fiber has 0.2 to 0.6 % by weight of  
an oil adhering thereto.

4. The staple fiber of claim 1, which is a polyolefin  
composite fiber.

35 5. The staple fiber of claim 4, wherein the

polyolefin composite fiber is a sheath-core composite fiber containing polyethylene as a sheath portion.

6. A process for the production of an electret non-woven fabric, which comprises;

the first step of providing, as a raw material, a staple fiber to which an oil containing, as a main component, an ester obtained from a polyethylene glycol having a molecular weight of 400 to 800 and a fatty acid having 10 to 20 carbon atoms is applied, and opening and carding said staple fiber, to obtain a web,

the second step of binding the web to obtain a non-woven fabric,

the third step of heat-treating the non-woven fabric, and

the fourth step of electrically charging the heat-treated non-woven fabric, to obtain an electret non-woven fabric.

7. The process of claim 6, wherein a polyolefin composite fiber is used as the staple fiber in the first step.

8. The process of claim 6, wherein a sheath-core type composite fiber containing polyethylene as a sheath portion is used as the staple fiber in the first step.

9. The process of claim 6, wherein the staple fiber to which 0.2 to 0.6 % by weight, based on the fiber, of the oil is applied is used in the first step.

10. The process of claim 6, wherein the web is needle-punched or stitch-bonded in the second step.

11. The process of claim 6, wherein the binding in the second step and the heat-treatment in the third step are

simultaneously carried out by hot air-through bonding or hot press bonding.

12. The process of claim 6, wherein the heat treatment in the third step is carried out at a temperature of 102°C to 145°C.

13. An article obtained from an electret non-woven fabric obtained by the process recited in any one of claims 6 to 12.

14. The article of claim 13, which is a filter material, a filter device or a wiper.